

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

**1-21. (cancelled)**

**22. (previously presented)** A battery recharging apparatus which comprises;

a) a charger, which is either built into a personal computer or connected directly or indirectly thereto,

wherein an internal power supply source of said personal computer is used as a power supply for said charger in a charging operation for said battery, and

wherein said charger includes a programmable charging processing operation program having capability for recognizing a type of rechargeable battery to be recharged and for selecting one charging processing operation program from a plurality of charging operation programs stored in said charger, based upon information about the type of battery thus recognized, said one selected charging process operation program being suitable for executing said charging operation for said recognized type of battery and for setting and executing said selected program, and for monitoring conditions required for charging said recognized battery type, and for controlling recharging of said recognized battery, and

wherein a charging operation may be performed by executing said charging processing operation program selected for said selected battery to be charged by utilizing an electric power supplied from said internal power supply source of said personal computer;

b) a battery holding apparatus which holds at least a

single battery to be charged and connected directly or indirectly to said charger;

c) a display means connected to said personal computer and displaying at least one information selected from a group consisting of information related to a battery to be charged, information related to conditions required for charging said battery to be charged and information related to past and current charging situation or results of said charging operation; and

d) an input means connected to said personal computer for inputting information at least about said respective battery to be charged necessary to execute said charging processing operation program into a controller provided in personal computer;

wherein said battery charging processing operation program is capable of executing high-speed charging processing, and further wherein said battery charging processing operation program is capable of executing said charging with a charging current of at least 2C.

**23. (cancelled)**

**24. (previously presented)** A rechargeable battery charging apparatus according to claim 22, wherein each one of a plurality of said charging processing operation programs is created so as to have a respective charging process operation condition of a rechargeable battery to be subjected to charging processing, being different from each other based upon at least one factor among a rechargeable battery manufacturer name, rechargeable battery type, model, construction, quantity, battery capacity, and internal resistance and the like.

**25. (previously presented)** A rechargeable battery charging apparatus according to claim 22, wherein said charging

processing operation program has a function to distinguish at least one information selected from a group of information consisting a manufacturer name, rechargeable battery type, model, construction, quantity, battery capacity, and internal resistance and the like of a rechargeable battery requiring charging processing inserted in said battery holding apparatus.

**26. (previously presented)** A rechargeable battery charging apparatus according to claim 22, wherein said charger automatically selects a charging processing operation program having the most suitable charging processing condition to said rechargeable battery to be charged, among a plurality of charging processing operation programs stored in said charger utilizing information about the rechargeable battery to be charged and distinguished by said personal computer, its-self or separate information about the rechargeable battery to be charged which is input into said personal computer by a user utilizing said inputting means.

**27. (previously presented)** A rechargeable battery charging apparatus according to claim 22 wherein information regarding a rechargeable battery requiring charging processing and inserted into said battery holding apparatus is displayed on a display means of said personal computer.

**28. (previously presented)** A rechargeable battery charging apparatus according to claim 27, wherein a user uses an appropriate input means associated with said personal computer to input information regarding a rechargeable battery requiring charging processing inserted in said battery holding apparatus, said information being displayed on a display means of said personal computer.

**29. (previously presented)** A rechargeable battery charging apparatus according to claim 28, wherein when a user uses an appropriate input means associated with said personal computer to input information regarding a rechargeable battery requiring charging processing inserted in said battery holding apparatus and display said information on said display means of said personal computer in a case in which at least one information being different from information regarding a rechargeable battery requiring charging processing inserted in said battery holding apparatus is input, an alarm means is driven.

**30. (previously presented)** A rechargeable battery charging apparatus according to claim 28, wherein a user, based on information regarding a rechargeable battery requiring charging processing, sets various conditions necessary to be required for charging said rechargeable battery by selecting same from a large number of alternatives displayed on a display screen of said personal computer.

**31. (previously presented)** A rechargeable battery charging apparatus according to claim 22, wherein a predicted charging characteristics graph with regard to charging operation conditions for said selected rechargeable battery requiring charging processing can be displayed on said display means of said personal computer.

**32. (previously presented)** A rechargeable battery charging apparatus according to claim 31, wherein said predicted charging characteristics graph indicates a relationship between a battery voltage and a charging time or a relationship between a battery temperature and a charging time.

**33. (previously presented)** A rechargeable battery charging apparatus according to claim 27, wherein a display means of said

personal computer displays at least one information selected from a manufacturer name, a battery type, battery capacity, charging rate, and internal resistance and the like with regard to charging operation conditions for said selected rechargeable battery whether it distinguishes the start of charging or charging in progress.

**34-36. (cancelled)**

**37. (previously presented)** A battery recharging apparatus which comprises;

a) a charger, which is either built into a personal computer or connected directly or indirectly thereto,

whereby an internal power supply source of said personal computer is used as a power supply for said charger in a charging operation for said rechargeable battery, and

wherein said charger includes a charging processing operation program having capability for recognizing a type of rechargeable battery to be recharged and for selecting one charging processing operation program from a plurality of charging operation programs stored in said charger, based upon information about the type of battery thus recognized, said one selected charging process operation program being suitable for executing said charging operation for said recognized type of battery and for setting and executing said selected program, and for monitoring conditions required for charging said recognized battery type, and for controlling recharging of said recognized battery, and

wherein a charging operation may be performed by executing said charging processing operation program selected for said selected battery to be charged by utilizing an electric power supplied from said internal power supply source of said personal computer;

b) a battery holding apparatus which holds at least

single battery to be charged and connected directly or indirectly to said charger;

c) a display means connected to said personal computer and displaying at least one information selected from a group consisting of information related to a battery to be charged, information related to conditions required for charging said battery to be charged and information related to past and current charging situation or results of said charging operation; and

d) an input means connected to said personal computer and for inputting information at least about said respective battery to be charged necessary to execute said charging processing operation program into a controller provided in personal computer; and

further wherein, said display means of said personal computer displays at least one information selected from a manufacturer name, a battery type, battery capacity, charging rate, and internal resistance and the like with regard to charging operation conditions for said selected rechargeable battery requiring charging processing, and separately displays either one of the start of charging or charging in progress and wherein said display means displays either a separate display of a battery voltage and battery temperature, which vary with the elapse of processing time, or a graph indicating a relationship between a battery voltage and a charging time or a relationship between a battery temperature and a charging time, further wherein, said charging processing operation program has separate settings of charging processing conditions for all rechargeable battery currently existing to be subjected to charging processing, respectively and further wherein said charging processing operation program is created that is suitable for charging processing of a new rechargeable battery each time a new rechargeable battery is marketed, said program

being added to an existing charging processing operation program by updating processing.

**38-43. (cancelled)**

**44. (previously presented)** A charging system for recharging a battery, comprising:

a) a personal computer comprising an internal power supply circuit;

b) a charger using said internal power supply circuit of said personal computer as a power supply for said charger in a charging operation and which is provided with a charging processing operation program suitable for performing a charging operation for charging a respective battery to be charged, said charger having capability for recognizing a type of rechargeable battery to be recharged and for selecting one charging processing operation program from a plurality of charging operation programs stored in said charger, based upon information about the type of battery thus recognized, said one selected charging process operation program being suitable for executing said charging operation for said recognized type of battery and for setting and executing said selected program, and for monitoring conditions required for charging said recognized battery type, and for controlling recharging of said recognized battery, and;

c) a display means connected to said personal computer and displaying at least one information selected from a group consisting of information related to a battery to be charged, information related to conditions required for charging said battery to be charged and information related to past and current charging situation or results of said charging operation; and

d) a controller for causing said personal computer to drive;

e) a battery holding apparatus which holds at least single rechargeable battery to be charged and connected to said charger;

f) an input means connected to said personal computer and for inputting information at least about said respective rechargeable battery to be charged necessary to execute said charging processing operation program into said controller of said personal computer; and

g) an external power supply means for driving said personal computer, and wherein said system further comprises a battery holding apparatus connected directly or indirectly to said charger, said battery holding apparatus including either a holder part configured so as to enable acceptance and a charging processing operation separately on one or a plurality of rechargeable battery of various sizes requiring charging processing, or a stand part configured so as to enable acceptance and a charging processing operation of a plurality of rechargeable battery to be charged of the same size packaged within a prescribed pack, or directly of a cellular telephone with said pack built thereinto, wherein, said charging processing operation program either built into said personal computer or stored in said charger externally connected to personal computer performs high-speed charging processing, and further wherein, said rechargeable battery charging processing operation program executes charging with a charging current of at least 2C.

**45. (cancelled)**

**46. (previously presented)** A charging system according to claim 44, wherein said charger is connected detachably to any one of output terminals of said internal power supply circuit of said personal computer, and is further connected either directly



or indirectly, by an appropriate connector and/or cable to said battery holding apparatus.

**47. (previously presented)** A charging system according to claim 44, wherein said charger is connected to said power supply circuit of said personal computer through an internationally standardized interface such as a PCI or a USB of said personal computer.

**48. (previously presented)** A charging system according to claim 45, wherein each of said charging processing operation program has mutually different charging processing conditions from each other as set for at least one factor among a rechargeable battery manufacturer name, rechargeable battery type, model, construction, quantity, battery capacity, and internal resistance and the like of a rechargeable battery to be subjected to charging processing.

**49. (previously presented)** A charging system according to claim 44, wherein said charging processing operation program has a function to distinguish at least one information selected from a group of information consisting of a manufacturer name, rechargeable battery type, model, construction, quantity, battery capacity, and internal resistance and the like of a rechargeable battery requiring charging processing inserted in said battery holding apparatus, and further wherein said program having a function in that said distinguished information about said rechargeable battery is displayed on said display means.

**50. (previously presented)** A charging system according to claim 44, wherein said input means is used to display on said display means information regarding a rechargeable battery

requiring charging processing inserted into said battery holding apparatus.

**51. (cancelled)**

**52. (previously presented)** A charging system according to claim 44, wherein, from information regarding said rechargeable battery requiring charging processing recognized by said personal computer, or from information regarding said rechargeable battery requiring charging processing input by a user via said input means, a charging processing operation program having charging processing conditions most suited for said rechargeable battery required charging processing is selected from a plurality of charging processing operation programs stored within said charger.

**53. (previously presented)** A charging system according to claim 44, wherein either various information regarding optimum charging operation conditions for a selected rechargeable battery requiring charging processing or a predicted charging characteristics graph with regard to charging operation conditions for said selected rechargeable battery requiring charging processing can be displayed on said display means of said personal computer.

**54. (previously presented)** A charging system according to claim 49, wherein said input means is used to display on said display means information regarding a rechargeable battery requiring charging processing inserted into said battery holding apparatus, further wherein, various conditions necessary to be required for charging said rechargeable battery by selecting same from a large number of alternatives displayed on a display screen of said personal computer can be set by a user, based on information regarding a rechargeable battery requiring charging

processing, and further wherein, from information regarding said rechargeable battery requiring charging processing recognized by said personal computer, or from information regarding said rechargeable battery requiring charging processing input by a user via said input means, a charging processing operation program having charging processing conditions most suited for said rechargeable battery required charging processing is selected from a plurality of charging processing operation programs stored within said charger, and further wherein, either various information regarding optimum charging operation conditions for a selected rechargeable battery requiring charging processing or a predicted charging characteristics graph with regard to charging operation conditions for said selected rechargeable battery requiring charging processing can be displayed on said display means of said personal computer, and further wherein, aid predicted charging characteristics graph indicates a relationship between a battery voltage and a charging time or a relationship between a battery temperature and a charging time.

**55. (previously presented)** A charging system according to claim 54, wherein a display means of said personal computer displays a battery type, battery capacity, charging rate, and internal resistance and the like with regard to charging operation conditions for said selected rechargeable battery requiring charging processing, and displays whether it distinguishes the start of charging or charging in progress, and further displays during said charging operation on said rechargeable battery either a separate display of a battery voltage and battery temperature, which vary with the elapse of processing time, or a graph indicating a relationship between a battery voltage and a charging time or a relationship between a battery temperature and a charging time.

**56. (previously presented)** A charging system according to claim 54, wherein a notification means is provided which, after a start of a prescribed charging processing operation under selected charging conditions with respect to a selected rechargeable battery requiring charging processing, in a case in which said charging operation is completed, makes notification to a user of said completion.

**57. (previously presented)** A charging system according to claim 54, wherein said charging processing operation program has a separate settings of charging processing conditions for all rechargeable battery currently existing to be subjected to charging processing, respectively.

**58. (previously presented)** A charging system according to claim 54, wherein said charging processing operation program is created that is suitable for charging processing of a new rechargeable battery each time a new rechargeable battery is marketed, said program being added to an existing charging processing operation program by updating processing.

**59-101. (cancelled)**